



Cancer Found in Susquehanna River Smallmouth Bass Sample

Introduction by Jeff Feaga, Primary Article From Pennsylvania.gov Press Release

In November 2014, a smallmouth bass (*Micropterus dolomieu*) caught on the Susquehanna River was found to have a deformity on its lower jaw. The affliction turned out to be a malignant cancer. This fish was the first individual caught and documented to have this type of cancer on the Middle Susquehanna River (near Harrisburg), but recent sampling efforts in the river have found other maladies such as sores and lesions on young-of-year bass.



Figure 1. Photo of Susquehanna River near Holtwood PA. Photo from Bucknell University.

These types of startling findings are not new for our region. After all, the development of eggs by male fish has been well document in the Potomac River and its tributaries since the early 2000s (see an article about this in the Washington Post [here](#)). Clearly the fish maladies seen in the rivers and streams of the Chesapeake Bay are related to water quality, but how? Scientists have been continuing to document and study the problem, but the mechanisms for these complicated pathologies are complicated.

As we try to move forward to improve water quality in the face of these disquieting changes to our natural world, we must remember that scientists can only characterize the problem and suggest ways that could help to improve the system. As citizens, we are left with the challenging (yet rewarding) tasks of implementing projects that improve water quality. Our projects, however small or low budget, should be done with patience, optimism, and an understanding that that it took quite some time for our rivers to get

to this point of degradation. It follows that it will take considerable time to improve these large systems. This is not a reason to give up and declare that it is too late, blindly throw blame, or expect that scientists and engineers will develop a convenient and cost free way to solve the problem.

With those words of wisdom (I hope), I'm providing the Pennsylvania press release about the cancerous smallmouth bass. Let it somehow be inspiring to bring people from all walks of life and ways of thinking together to admit that improving water quality is a need rather than a wish.

Tests Confirm Rare Cancer Finding in Susquehanna River Smallmouth Bass Sample May 4, 2015

WILKES-BARRE, Pa. (May 4) – The Pennsylvania Fish and Boat Commission (PFBC) today announced that two independent laboratory tests have confirmed a malignant, or cancerous, tumor on a single smallmouth bass (SMB) caught in the middle Susquehanna River by an angler late last year and provided to the PFBC. The announcement was made during the PFBC's quarterly business meeting held here today.

Cancerous growths and tumors on fish are extremely rare in Pennsylvania and throughout the U.S., but they do occur. This is the only documented case of this type of tumor being found on SMB in Pennsylvania. The finding was confirmed by the U.S. Fish and Wildlife Service and the Aquatic Animal Health Laboratory at Michigan State University.

PFBC Executive Director John Arway said that although the finding represents only one individual fish from the overall population, it provides additional evidence that the health of the fish community residing in the river is being compromised.

“As we continue to study the river, we find young-of-year and now adult bass with sores, lesions and more recently a cancerous tumor, all of which continue to negatively impact population levels and recreational fishing,” he said. “The weight-of-evidence continues to build a case that we need to take some action on behalf of the fish.”



Figure 2. Smallmouth bass with confirmed malignant tumor. Caught by angler in Susquehanna River near Duncannon, Dauphin County, on Nov. 3, 2014. Photo credit: John Arway.

Since 2005, PFBC biologists have observed more than 22,000 adult SMB as part of routine surveys in the Susquehanna River basin and have not documented any fish with obvious signs of tumors. However, PFBC biologists continue to find sores and lesions on young-of-year bass during late spring and early summer surveys at alarming rates.

Dr. Karen Murphy, acting Secretary of the Pennsylvania Department of Health, said “There is no evidence that carcinomas in fish present any health hazard to humans. However, people should avoid consuming fish that have visible signs of sores and lesions.”

Arway added that anglers must make personal decisions on whether or not to consume fish. He also noted that catch-and-release regulations for SMB are already in place on 98 miles of the middle portion of the Susquehanna River where the symptomatic fish was captured and on the lower 31.7 miles of the Juniata River from Port Royal to the mouth.

The PFBC first documented disease-related mortality of young-of-year SMB in the Susquehanna River in 2005. The continued mortality has contributed to the decline in abundance of SMB. Since 2012, the PFBC has unsuccessfully petitioned the state Department of Environmental Protection (DEP) to add the river to the state’s bi-annual list of impaired waterways.

“The impairment designation is critical because it starts a timeline for developing a restoration plan,” said Arway. “We’ve known the river has been sick since 2005, when we first started

seeing lesions on the smallmouth. Now we have more evidence to further the case for impairment.”

“If we do not act to address the water quality issues in the Susquehanna River, Pennsylvania risks losing what is left of what was once considered a world-class smallmouth bass fishery,” he said. “DEP is expected to release its 2016 list of impaired waters in late fall. We are urging them once again to follow the science and add the Susquehanna River to the list.”

PFBC biologists conduct annual young-of-year and adult SMB surveys on this stretch of the river from late June through the end of October when sampling conditions are appropriate. In addition, the PFBC has enlisted the assistance of certain anglers and guides to provide fish with obvious massessor lesions if they encounter any when fishing the river.

PFBC staff are continuing to work with DEP, the U.S. Geological Survey, the U.S. Fish and Wildlife Service, the U.S. Environmental Protection Agency and other partners to focus efforts on better understanding what factors are impacting the SMB inhabiting the middle Susquehanna and lower Juniata rivers.

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